

MFM1P Exam Review Questions

1. Simplify each expression fully.

a) $3x - 2x + 7x$

b) $-5p^2 + 3p + 6p^2 - p$

c) $5(3x - 3)$

d) $4(2x^2 - 3x + 2)$

e) $(3x^2 - 3x + 3) - (2x^2 - 3x - 3)$

f) $3x(2x^2 - 2x + 1)$

2. Solve each equation for x.

a) $6x + 3 = 21$

b) $3x + 7 = 5x - 1$

3. Solve the equation for x, if $y = 7$

$$6x + 15 = 3y - 3$$

4. Write the following fraction as a percent.

$$\frac{15}{25}$$

5. Reduce the ratio to lowest terms.

21:14

6. 8 L of milk costs \$8.96. Determine the cost of 1L of milk.

7. Determine the rate of change and initial value from the following equations.

a) $C = 4x - 8$

rate of change _____

initial value _____

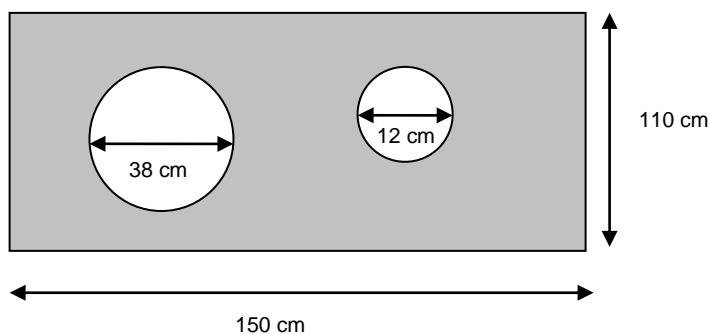
b) $C = 0.3x$

rate of change _____

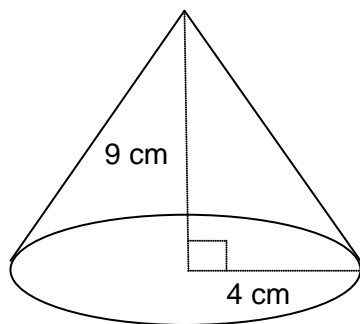
initial value _____

8. If the perimeter of a four sided figure is 124m, determine the maximum area that can be obtained. Include a labeled diagram.

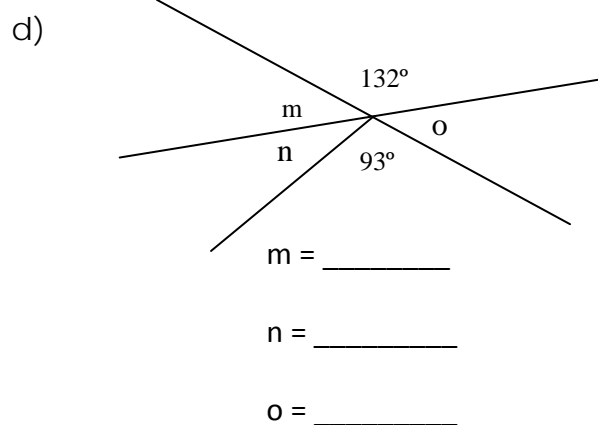
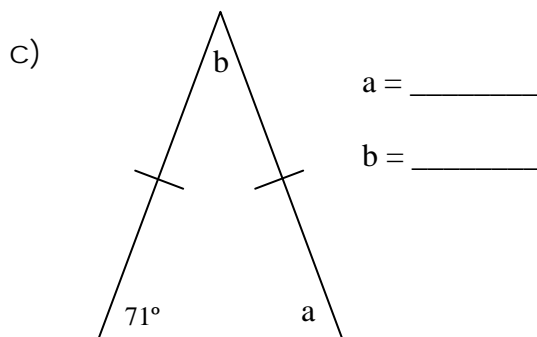
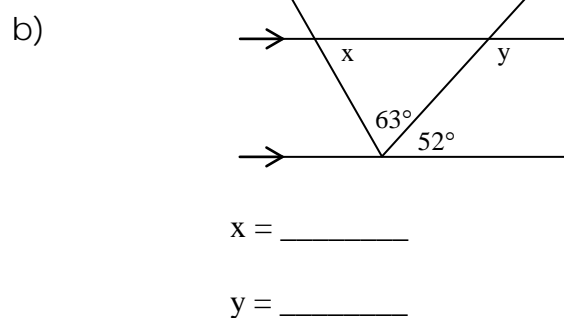
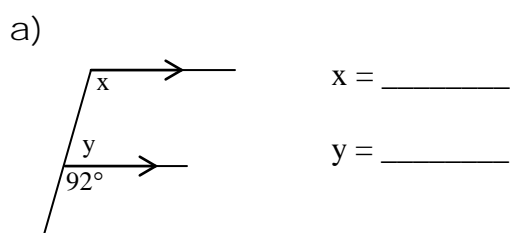
9. Determine the area of the shaded part of the figure.



10. Calculate the volume of the cone. Include proper units. Round your answer to 1 decimal place.



11. Find the value of the indicated variables.
(Hint: "F" pattern, "Z" pattern, sum of angles in a triangle, etc.)



12. Write an **equation** for each relationship.

a) A mini-putt course has a special price for groups. A round for two costs \$15 plus \$6 for each additional person.

b)

Distance (km)	Cost of Car Rental(\$)
0	35
100	56
200	77
300	98
400	119

13. Jacob is learning how to skateboard. Kooltricks Skateboards charges \$18 for skateboard rental and \$12 per hour for lessons.

a) Start at 0 hours and complete the table of values up to 4 hours.

Lesson Time (hours)	Total Cost (\$)	First Differences

b) Write an equation to model the relationship.

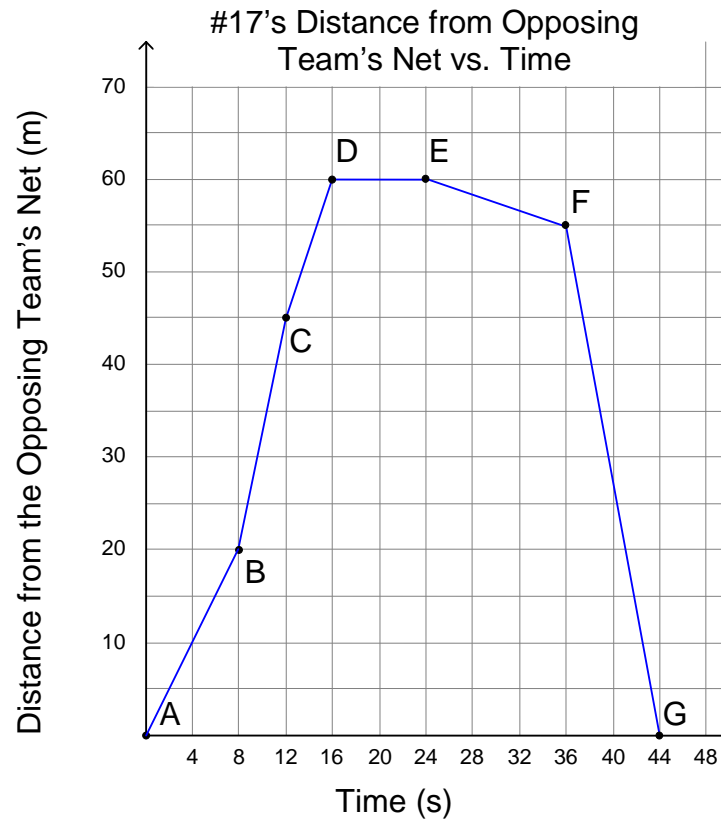
c) Does this relation represent a **linear or non-linear** relation?

d) Is this **direct variation** or **partial variation**? **Explain your answer.**

e) If it cost Jacob \$66, how many hours of lessons did he take? **Show your work.**

14. Roger is making a rectangular gate. The gate is 1.7 m wide and 2.2 m high. To check that the gate has 90° corners, Roger measures the diagonal. How long should the diagonal be? **Sketch a diagram** to support your answer.

15. A hockey player (#17) skates from the opposing team's net to her team's net. Examine the graph.



- a) Determine the player's speed (rate of change) for each of the following line segments:

i) Rate of change AB =

ii) Rate of change DE =

iii) Rate of change FG =

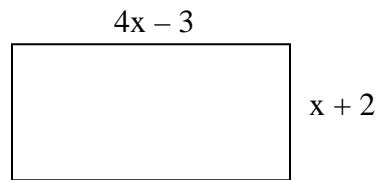
- b) How long did it take the player to reach her team's net? How do you know?

- c) How long did the player stay at her team's net?

- d) How long did it take the player to get back to the opposing team's net from her team's net?

16. Liana is having a dinner party for 18 guests. She is using a recipe that calls for 7 garlic cloves and says it serves 6 people. How many garlic cloves will Liana need to use in order to serve her 18 guests?
17. Peggy is buying laptop. The regular price was \$799, but it is on sale for 22% off. The taxes are 13%. Determine each amount. **Show your work.**
- a) the sale price
- b) the taxes
- c) the total amount that Peggy will pay
- d) Peggy has a part-time job at a pet store. She earned \$208.25 for working 17 hours. What was Peggy's hourly wage?
- e) At this hourly wage, how many hours will it take Peggy to earn the money (including the tax) to buy the laptop? Round to the nearest whole number.

18. Ken wants to build a patio in his backyard with the dimensions shown below. The dimensions are measured in metres.



- a) Write an algebraic expression for the perimeter of the patio and simplify it.

- b) Find the length, width, and perimeter of the patio if $x = 6$ metres.

Length:

Width:

Perimeter:

19. The table shows the Time that ten grade 9 students spent practicing a video game, and the Highest Score each got in the game.

Practice Time (hours)	10	0.5	1	3	5	4	7	9	8	5
Highest Score	900	500	580	660	620	420	860	580	820	540

- a) Create a scatter plot for these data. Plot *Practice Time* on the horizontal axis and *Highest Score* on the vertical axis. Include units.

